CoRe Welcomes New Program Director

CoRe Announces New Director

Timothy J. Hinds has been selected as the new director of MSU Engineering’s Cornerstone & Residential Experience (CoRe), effective Jan. 1, 2018. He replaces S. Patrick Walton, who is now the C. Robert and Kathryn M. Weir associate professor and associate chair for MSU’s Department of Chemical Engineering and Materials Science.

CoRe provides academic and co-curricular activities for first-year engineering students and is aimed at building the whole engineer, Hinds said. “I am looking forward to guiding our team in their efforts to develop the next generation of engineering problem solvers,” he added.

Hinds has served as CoRe’s academic director since 2007. From 2002-2006, he was an academic specialist in the MSU Department of Mechanical Engineering and served as the associate director for the Case Center for Computer Aided Engineering and Manufacturing from 1996-2002. He received bachelor’s and master’s degrees in mechanical engineering from Michigan Technological University.

He is an award-winning educator. In 2007, he received the Michigan State University Distinguished Academic Staff Award. His other honors include the College of Engineering Withrow Student Services in 2014, and he shared the Michigan State University Service Learning and Civic Engagement Award in 2012.

Hinds is active in the American Society of Engineering Education (ASEE)’s First Year Programs Division. He served as the program chair for the 2017 First Year Engineering Experience (FYEE) Conference, Enhancing the First Year of Engineering Education, at Embry-Riddle Aeronautical University in Daytona Beach in August, and was elected program chair for the 2018 FYEE Conference at Rowan University in Glassboro, New Jersey, next summer.

We are confident that Mr. Hinds will lead CoRe to greater prominence in the years to come.

Timothy Hinds, Director
College of Engineering CoRe Experience

Dr. Neeraj Buch
Associate Dean for Undergraduate Studies
Professor of Civil and Environmental Engineering
Michigan State University
Co-Curricular Highlights

As we say farewell to another successful semester, CoRe would like to provide an account of the co-curricular activities created to assist students in developing their T-shaped competencies. The CoRe plan launched for the class of 2021 was to build their T-shaped competencies throughout the academic year. Building a T-shaped engineer begins with building a T-shaped student who has a deep knowledge of their major with the ability to apply their technical knowledge across all disciplines. To accomplish this goal, co-curricular programming targeted the social, professional, and academic development of all CoRe students living in the South Neighborhood on campus (1,257 engineering first-year residents housed in Wilson, Wonders, and Holden Halls). Below are examples of how CoRe strategically placed T-shaped competencies within co-curricular programming.

Understanding the T: The vertical stem of the T is the foundation: an in-depth specialized knowledge in one or two fields. The horizontal crossbar refers to the complementary skills of communication, creativity, the ability to apply knowledge across disciplines, empathy (including the ability to see from other perspectives), and an understanding of fields outside your area of expertise (Rogers, 2016).

During the fall semester, students were introduced to college and campus resources at the College Colloquium as well as the opportunity to participate in career networking with CoRe Theme Partners and student organization leaders. Colloquium is a welcome event for the entire incoming class of undergraduate engineering students. To assist the students in understanding the importance of networking, utilizing college and campus resources, David Spears, a Mechanical Engineering 2007 alum, delivered the Colloquium message. As an engineering alum who is now a practicing attorney, students were able to conceptualize the career aspirations realized by a fellow Spartan Engineer.

The concept of teamwork and critical thinking skills was kicked off by Donald S. Trevarthen, a Materials Science and Engineering 1979 alum and a retired patent attorney. Don explained that engineering undergraduate students must develop their critical thinking skills.

Stay Connected: www.egr.msu.edu/core
He stated that the engineering profession relies on clear, concise, and rational decision making through a structured thought process with team members across all disciplines and that students must develop the skills needed to compete. He also provided examples of engineering ethics, critical thinking, and communication skills in the workplace and solicited student input.

During the fall semester, students were able to select from a list of CoRe events to continue their social, professional, and academic development. CoRe co-curricular activities for Fall 2017 included:

- **Professional Development**: ME Machine Lab Tour and Demonstration, A Women in Stem Conference hosted in Detroit, Michigan, and faculty panel discussions
- **Teamwork**: Established math, physics and chemistry study groups. Students met throughout the semester.
- **Communications**: A final exam resource fair and an MSUFCU Money Management Seminar
- **Networking**: Engineering Education Abroad information session, a corporate site visit to Consumers Energy in Jackson, Michigan, and a professional presentation on College scholarships
- **Critical Thinking Skills**: A final exam design competition and a CoRe resource scavenger hunt
- **Engineering Expertise**: CoRe Theme Partner semester mentoring (Bosch, Consumers Energy, GE & Tenneco), Pattern Recognition and Image Processing (PRIP) Lab seminar, and the MSU-Fraunhofer Center for Coatings and Diamond Technologies interactive seminar

A new initiative created for first-year undergraduate students this year was providing them with access to engineering education abroad programming options. Students are now able to meet during their 1st year at the university with the Engineering Education Abroad team to plan an experiential opportunity abroad. CoRe also provided sessions on stress management, how to gain admission to the College of Engineering, and a community service activity in the city of East Lansing to introduce youth to engineering as a profession. We are very excited to continue our work in developing T-shaped students throughout the spring of 2018.

## Academic Highlights

CoRe’s academic program is based on the principle that engagement in meaningful engineering experiences early in students’ undergraduate careers supports their success and persistence to graduation. Through our courses, EGR 100: Introduction to Engineering Design and EGR 102: Introduction to Engineering Modeling, we strive to engage students across the disciplines in team-based projects that pique their interests and give them a window into actual professional engineering. Activities this semester occurred on multiple fronts, from new and continuing projects and initiatives to engaging with campus and industry partners.

Thanks to Our Theme Partners!

[Images of sponsors: Bosch, Consumers Energy, GE, Tenneco]
Industry Partner Participation: We also hosted engineering alums from Albemarle, Consumers Energy, Dow Chemical, Eaton, Mars/Wrigley, and TechSmith, who served on our EGR 100 industry panels, giving students insights to co-op, internship, and full-time career positions.

Telling the World: We were also busy attending and participating at the American Society for Engineering Education (ASEE) Annual Conference in Columbus, OH, and Los Angeles, CA, and participating in the First Year Engineering Experience (FYEE) Conference in Daytona, FL. We presented our work on our efforts to improve students’ spatial visualization skills as a means of supporting their success in their engineering academic careers.

Experiential Projects: We continued our EGR 100 project partnerships with ArcelorMittal (annealing furnace gas sampling system), Delphi (mild hybrid vehicle architecture), and Tenneco (pothole reporter mobile app design). Student teams displayed their work at the College of Engineering Design Day at the end of the semester.

Experiential Education: We continued to partner with The Center for Spartan Engineering, the career services organization for the College of Engineering, to expand our program and encourage all first-year engineering students to complete an initial experiential education opportunity (internship, co-op, summer job, or research lab position), prior to the beginning of their sophomore year. We will begin to collect and analyze data from our students over Spring 2018 semester to monitor our success.

Tutoring Services: Through the generous support of our Theme Partners and industry sponsors, we continued to offer tutoring in Calculus, Chemistry, and Physics to our first-year students. The CoRe Tutoring Center is a constant buzz of activity, with students being assisted in learning course materials and preparing for examinations.

New Course Project: Our EGR 102 students were introduced to a new course project where they analyzed cyclist data collected in Toronto, Ontario, as a means to better understand patterns, peaks, and projected growth of bicycle traffic in a densely-populated downtown city core.

Engineering and Art: One of our previous EGR 100 projects hit the road as Clifford the Big Red Truck, a mobile art studio for young students, built on a 1937 Ford firetruck, travelled the area bringing art projects to various school groups. This project was in partnership with the MSU Residential College in the Arts and Humanities (RCAH), and was supported by the Ford Motor Company Fund through its Ford Community Corps Program.

Telling the World: We were also busy attending and participating at the American Society for Engineering Education (ASEE) Annual Conference in Columbus, OH, and Los Angeles, CA, and participating in the First Year Engineering Experience (FYEE) Conference in Daytona, FL. We presented our work on our efforts to improve students’ spatial visualization skills as a means of supporting their success in their engineering academic careers.